



METHOD AND APPARATUS FOR A DFT/IDFT ENGINE SUPPORTING MULTIPLE X-DSL PROTOCOLS

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CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of prior filed co-pending Provisional Application No. 60/161,744 entitled "BURST MODE ENGINE" and filed on October 26, 1999 (Attorney Docket # VELCP003P); and co-pending Provisional Application No. 60/179,862 entitled "DMT ENGINE" filed on February 2, 2000 (Attorney Docket# VELCP010P). Each of the above-cited applications is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of Invention

This invention relates generally to communications, and more particularly, digital signal processors which provide support for both the discrete Fourier transform (DFT) and the inverse discrete Fourier transform (IDFT).

2. Description of the Related Art

North American Integrated Service Digital Network (ISDN) Standard, defined by the American National Standard Institute (ANSI), regulates the protocol of information transmissions over telephone lines. In particular, the ISDN standard regulates the rate at which information can be transmitted and in what format. ISDN allows full duplex digital transmission of two 64 kilo bit per second data channels. These data rates may easily be achieved over the trunk lines, which connect the telephone companies' central offices. The problem lies in passing these signals across the subscriber line between the central office and the business or residential user. These lines were originally constructed to handle voice traffic in the narrow band between 300 Hz to 3000 Hz at bandwidths equivalent to several kilo baud.

Digital Subscriber Lines (DSL) technology and improvements thereon including: G.Lite, ADSL, VDSL, SDSL, MDSL, RADSL, HDSL, etc. all of which are broadly identified as X-DSL have been developed to increase the effective bandwidth of existing subscriber line connections, without requiring the installation of new fiber optic cable. An X-DSL modem